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Gema de Cabo Serrano

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FACULTAD DE ECONOMICAS

Campus de Somosaguas

28223 MADRID

Teléfono 91 394 26 11 - FAX 91 294 26 13

Internet: http://www.ucm.es/info/icae/

E-mail: icaesec@ccee.ucm.es

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Effects of labour market institutions on unemployment and employment creation

Gema de Cabo Serrano
Departamento de Economía Cuantitativa
Universidad Complutense de Madrid
28223 Madrid
Tel.: 91 394 2384, Fax: 91 394 2591
e-mail: eccua26@sis.ucm.es

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ABSTRACT

In this paper, the role played by institutions in labour markets and their effects on labour outcomes are presented. The results show that, first, the flexible and rigid labour market models do not exit, instead, there are intermediate labour market models. Second, many features of the labour market, usually viewed as serious rigidities, have slight impact on unemployment. And finally, a wide range of labour market institutions have cumulative effects on unemployment and employment creation, which can be amplified under specific combination of institutions.

Keywords: rigidity, unemployment, employment creation.
JEL Classification: C23, J50.

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1. INTRODUCTION

This article offers a study of the role played by institutions of labour market across the most developed Organisation for Economic Co-operation and Development (OECD) countries and their effects on unemployment and employment creation. The results presented show that (1) the flexible and rigid labour market models do not exist, instead, there are intermediate labour market functioning models, (2) many characteristics of the labour market that are popularly viewed as serious rigidities have slight impact on unemployment and (3) a wide range of labour market institutions have cumulative effect on unemployment and employment creation, which can be amplified under specific combination of institutions, so high degree of wage bargaining together Active Labour Market Policies (ALMP).

The regulatory environment and/or institutional arrangements exist and can affect the clearing function of the labour market in several ways. The detractors consider the labour market as any other products' market in which the same rules for price and quantity determination in competitive markets must be applied. In this context, the role played by institutions is to weak the demand for labour, making it less attractive to hire a worker by explicitly pushing up the wage cost or by introducing a negative shadow price for labour and, also, to disturb the labour supply by impairing the equilibrating function of the market mechanism adjustment between workers' and enterprises' decisions within an efficient market. From this perspective, the high level of rigidity of the European labour markets is the main reason of the high unemployment rates of these countries (*e.g.* Siebert, 1997). Therefore, the key-point to fight against unemployment is to make the labour markets more flexible, especially in Europe (*e.g.* OECD, 1994b, and European Commission, 1994).

On the contrary, the upholders indicate that it must not forget some key forces in determining labour market behaviour, such as power and social relationships, custom and fairness (*e.g.* Adnett, 1996). This perspective contains a very diverse group, *e.g.* the labour market segmentation theory (Dickens and Lang, 1992), the insider-outsider model (Snower,

1989), etc., pays much attention to custom and practice in the labour market. The purported weakness of market forces in most sectors of the labour market leads this approach to emphasise the importance of internal, firm-specific factors in wage and employment determination and to view persisting unemployment as a normal feature of unregulated labour markets. The economic agents interacting in labour markets require biases to defend their economic and power position, which justifies the existence of regulations that acquire different characteristics and justifications depending on the reference country.

Intermediate positions defend that some institutional characteristics of labour markets, above all in Europe, permit to sustain high levels of unemployment but many others so-called rigidities have no observable impact on unemployment (Scarpetta, 1996 and Nickell, 1997). The results described in the present job encompass these previous cross-country studies comparing labour market performance. They also offers new insights: (1) the construction of a rigidity index which summarises the diversity of labour market models functioning across the most developed OECD, against the traditional idea of rigid versus flexible labour market models. And (2) an empirical evaluation of the institutional influence on the evolution of unemployment and the employability which shows that the cumulative effects of the institutions are higher than the individual ones and that certain combinations of institutions are less damaging than others.

Traditionally, studies on the impact of legal regulations on labour market processes focus on wage or status attainment, as outcome variables, considering that institutional structures and labour regulations do not change over longer periods of time. However, this perspective has been challenged by frequent attempts to use labour law reform as an instrument of labour market policy (Rogowski and Schoöman, 1996). Given this use, the present job can not omit some general recommendations of economic policy oriented, not to the absence of all institutional rigidity, but to the combination of institutions that can be better adapted to the socio-economic characteristics of the labour markets of the countries considered. It is also remarkable that, although most economists make the institutions of the labour markets

responsible for the high and persistent unemployment in Europe, the recommendations of flexibility can be politically accepted in some countries and not in others (Saint-Paul, 1996).

This article is organised as follows. Section 2 describes the main characteristics of the institutions which regulate the labour market. Section 3 presents the construction of a rigidity index and the results obtained from it interpretation. Section 4 offers the empirical analysis of relationships between the rigidities considered and the labour market outcomes studied. Finally, Section 5 summarises the conclusions. Also, Annex: Variables contains the description and sources of the variables.

2. CHARACTERISTICS OF LABOUR MARKET INSTITUTIONS

The description of the institutions which regulate the labour markets allows us (1) to delimit and facilitate the theoretical and empirical treatment of the set of variables known as institutional variables, (2) to discuss their potential effects on the supply and demand of employment and, therefore, on unemployment and job creation, and (3) to discover the different institutional characteristics of the labour markets of the OECD countries studied.

The Direct Measurements of the level of rigidity of the labour markets are the Employment Protection (EP) and Labour Standards (LS), which summarise the legislation about hiring and dismissal costs and working conditions, respectively. Among other authors, Saint-Paul (1996) offers a pessimistic view of the effect of these variables on the evolution of employment. Specifically, he shows us that the institutional rigidities are determined by the interests of the insiders, who are more numerous and better organised than the outsiders. Furthermore, he shows that the reforms geared towards a greater flexibility are carried out when they are easier to sell to the insiders and that the tightening of legislation occurs when unemployment is increasing and economic growth is decreasing. However, these regulations do not only generate negative effects, because if employment is very protected, companies have incentives for investing in the specific training and recycling of their human capital.

The institutions in charge of Unemployment Treatment are essentially focused on Benefit Duration (BD), which indicates the duration in years of unemployment benefit. It increases the potential workers' shadow price, the minimum wage for which he would accept a job offer, so the Benefit Replacement Rate (BRR) (Layard *et al*, 1994 and Nickell, 1997), although there are exceptions; *e.g.* Sweden has a high replacement rate, around 80%, together with a relatively short unemployment benefit duration, 1.2 years. These factors unduly reduce the intensity of job search, increase the duration of unemployment, weaken the pressure of the unemployed to accept suitable job offers, and prevent adjustment of lowest wages.

Benefit systems can cause two types of labour market problems (OECD, 1996b and 1997c). The first is the "unemployment trap" which occurs when benefits are high compared with expected incomes when working. Cutting benefits to the unemployed would increase the reward to taking a job but the social costs of this solution may be unacceptable. And the second is the "poverty trap" which appears when incremental increases in earnings or income lead to withdrawal of benefits and higher tax payments, so people on low incomes receiving benefits are discouraged from additional effort.

Furthermore, the Tax System may cause a third problem on labour markets. High labour costs may increase its cost and reduce employment. In particular, tax payments and social security contributions for those on low earnings are high, raising the cost of labour, discouraging hiring and stifling entrepreneurship, (OECD, 1995a and 1997c). A good measure of the tax burden which is likely to influence the labour market is the Total Tax Rate (TTR) (social security contributions and other indirect costs paid by employers and social contributions and taxes on pay levied on employees). Although this variable discourages supply and demand of work, its effect on unemployment and job creation cannot be easily isolated, because there exist socio-political objectives which, depending on the country in question, may require high social contributions from workers and employers in order to maintain the validity of the unemployment benefit systems. Hence, most policy reforms of taxes and benefits involve trade-offs between financial and social costs.

The asymmetry between countries is important with regard to ALMP. Some countries show a higher level of commitment than others with regard to this activity and spend more on placement and advice services, training of the adult unemployed and direct creation of jobs and hiring subsidies. This is particularly true of European countries as opposed to the United States and Japan. It may distinguished two components: (1) Subsidised Employment and Measures for the Disabled (APS) encourage employment creation, especially of less skilled workers, by reducing their relative cost. However it is likely to segment the labour market and to induce substitution effects (subsidised workers replacing non-subsidised workers). (2) Training Programs and Youth Measures (APC) aim at enhancing employability prospects but they have not proved to be effective if they are open to all unemployed and not targeted to specific labour market needs.

Unemployment also depends on the institutions which determine the wages and on the extent to which they are dominated by the insiders, *i.e.* on Collective Bargaining. In Europe, the unions intervene extensively in the process of establishing wages, although the proportion of union labour, Union Density (UD), began to decrease in most European countries in the 1980's, especially in the United Kingdom and France, the latter with average rates of about 9.5% in the 1990's. However, the workers who earn wages covered by a collective bargaining, Union Coverage Rate (UC), represent more than 75% in most European countries, whereas the United States and Japan maintain the lowest rates. These variables are complemented by the level of Co-ordination (CO) and Centralisation (CE) of the wage bargaining, *i.e.* whether the unions and the employers adopt the same position in the wage bargaining and whether this results in national, sectoral or company-level agreements. Although wage bargaining operates in a very centralised manner with multisectoral national agreements in the Nordic countries and in Austria, unisectoral agreements are reached in the European Union, with wide divergences among countries depending on their level of co-ordination, *e.g.* in Germany, an agreement in one sector lays down the guideline for the rest, whereas in the United Kingdom, the sectoral agreements are not very important and there is little discussion about the existing wage. In

Australia and New Zealand, the fixing of basic wages is centralised, unlike in the United States and Canada, where most of the wages are established at the discretion of the employers.

This general view of the institutions in the labour markets seems to suggest that neither complete flexibility nor complete rigidity is appropriate as the sole determining factor of the evolution of the labour markets. In reality, a trade-off takes place in each country, because a certain degree of rigidity stabilises employment and income at the expense of a rapid adjustment to the change, whereas a high level of flexibility allows a rapid and efficient adjustment in return for an increase in the volatility of wages and higher risk of unemployment.

It is important to note that some combinations of institutions affect unemployment and employment creation in the same direction, so high firing costs and high unemployment benefit duration, which induce strong disincentives for labour demand (firms do not hire) and labour supply (employees do not look for work. In other combinations, however, the effect of one institution is contrary to the other's so ALMP and high unemployment benefits, since the former increases employability but the latter induces low incentives to apply it. This suggests that labour market institutions are not independent in their working (Coe and Snower, 1997).

3. A RIGIDITY INDEX

It is customary to divide labour markets into a simple dichotomy of flexible and rigid. However, the one-by-one exploration of the labour market institutions carried out in the previous section shows that there are different levels of institutional rigidity, and also offers results which are not definitive with regard to the effect of the institutions on the labour markets. That is to say, the United States' flexible model and Europe's rigid model do not exist. Instead, there are intermediate labour market functioning models which extend the typology of countries. In order to represent this perception, an index for the institutional rigidities has been constructed, divided into Direct Rigidity (represented by EP), Unemployment Benefit (represented by BD), ALMP, Collective Bargaining (represented by the UD, UC, CO, CE

average) and Tax System (represented by TTR) and, also, an index which summarises the institutional rigidity in labour markets (arithmetical mean of the other five indices) (Table 3.1).

These indices are constructed on the basis of homogeneous criteria over time and have ordinal value across the countries considered (these are arranged according to the degree of rigidity of their labour markets). For constructing a rigidity index, the range of values of a institutional variable is divided into four categories. The level of rigidity which each category represents is: 1 (low), 2 (medium-low), 3 (medium-high) and 4 (high), so the rigidity index is ranked from 1 to 4. For example, the values of BD, that goes from 0.5 to 4, are divided into four closed intervals represented by one of the four possible values of the index, [0.5, 1] = 1, [1.5, 2] = 2, [2.5, 3] = 3 and [3.5, 4] = 4. In the case of ALMP, the level of rigidity is understood to be higher the less money the country in question invests in this type of policy.

It is true that the non-European countries, with the United States at the top of the list (index 1.6, the lowest of all the countries considered), show a lower level of institutional rigidity in their labour markets than European countries. But among the latter, the importance of the five groups of labour market institutions considered varies substantially from one country to another. For example, Germany has a much more significant investment in active policies than Spain, although both have a similar level of institutional rigidity in their labour markets (index 3.2) or Portugal and Netherlands (index 2.6) have identical total index but significant differences with respect to the duration of unemployment benefits.

Collective Bargaining is crucial to the functioning of the labour markets. Except for the United States and Canada, this institution presents a medium-high or high index (3 or 4) in most countries, a symptom of the confidence instilled by the agreement among the economic agents aimed at fighting unemployment.

It is relevant note that the majority of the European countries, although present medium-high or high level of rigidity in their labour markets, have a brief variety of unemployment rates. This fact is summarises in Table 3.2 (rigidity is represented by the rigidity labour markets index presented in Table 3.1, and Unemployment is described by an index

constructed by a similar way than the rigidity index), where not all the countries considered are in the main diagonal (it would be the result if the higher rigidity level was the higher unemployment was).

The two extremes, United States as example of flexible labour market (index 1.6 and unemployment rate 6.3%) and Spain a rigid one (index 3.2 and unemployment rate 20.4) are representative of the negative relation between institutions and unemployment. However, most countries have an average unemployment rate of between 4% and 11% for the 1983-1997 period, regardless of the level of rigidity of their labour contractual legislation, an observation which corroborates the results obtained by Nickell (1997). In fact, a group of countries presents low unemployment rates with both high and low rigidity levels, such as Austria (index 3.2 and unemployment rate 4.5) or Japan (index 2.2 and unemployment rate 2.7). And also, high unemployment rates are compatible with medium rigidity levels, so Italy (index 3.0 and unemployment rate 9.1) or Netherlands (index 2.6 and unemployment rate 8.1).

An important idea is derived from all these facts, unemployment in some European countries is not produced directly by rigidity, but it seems to be caused by the inadequate application of institutional regulations. Hence, the next step is to attempt to discover the combinations of institutions with higher impact on unemployment and job creation.

Table 3.1: Rigidity labour markets index

	Direct Rigidity (1-4)	Unemployment Benefit (1-4)	Active Labour Market Policies (1-4)	Collective Bargaining (1-4)	Tax System (1-4)	Rigidity Index (1-4)	Total Unemployment (%)
Belgium	4	4	3	3	3	3.4	10.4
Austria	4	2	3	4	3	3.2	4.6
Germany	3	4	2	4	3	3.2	7.3
France	3	3	3	3	4	3.2	10.7
Ireland	3	4	4	3	2	3.2	14.5
Spain	4	3	4	3	2	3.2	20.4
Finland	2	3	2	4	4	3.0	10.6
Italy	4	1	4	3	3	3.0	9.1
Sewden	3	2	1	4	4	2.8	5.0
Norway	3	2	2	4	3	2.8	4.2
UK	2	4	4	2	2	2.8	9.3
Portugal	4	1	3	3	2	2.6	6.6
Netherlands	2	3	2	3	3	2.6	8.1
Denmark	1	3	2	4	3	2.6	9.8
Australia	1	4	4	3	1	2.6	8.7
New Zealand	1	4	3	2	2	2.4	6.7
Japan	2	1	4	3	1	2.2	2.7
Switzerland	2	1	2	3	1	1.8	2.3
Canada	1	1	4	1	2	1.8	9.7
US	1	1	4	1	1	1.6	6.3

Table 3.2: Typology of countries

		UNEMPLOYMENT			
		++	+	-	--
RIGIDITY	++	Spain Ireland	Belgium France	Germany	Austria
	+		Finland Italy United Kingdom		Norway Sweden
	-		Denmark Australia New Zealand	Portugal Netherlands	Japan
	--		Canada	United States	Switzerland

4. EVALUATING LABOUR MARKET RIGIDITY

4.1 Variables, data and methodology

The main aim of this job is to verify and evaluate empirically relationships of labour market institutions with target outcome variables to explain, unemployment and employment creation. In order to achieve this aim, linear regression models are constructed where the endogenous variables are Total Unemployment Rate, Short-term Unemployment Rate, Long-term Unemployment Rate and Employment/Population Ratio, respectively, and the explanatory variables are institutional and economic (definition and sources, Annex).

The institutional explanatory variables are divided into the five types described in Section 2: (1) Direct Rigidities (type A) is represented only by EP because the high correlation between EP and LS, (2) Unemployment Treatment (type B) is represented by BD and BRR, (3) ALMP (type C) and APS (type C2) are represented by instrumental variables, ALMP* and APS*, respectively. Because ALMP and APS refer to percentage of Gross Domestic Product (GDP) normalised on current unemployment, these variables are endogenous. So, considering unemployment rates, it is renormalised the current percentage of GDP spent on ALMP and APS on the unemployment rate in 1979 to create the instruments. With respect to employment/population ratio, ALMP and APS are instrumented as mentioned. (4) Collective Bargaining (type D) is represented by UD, UC, CO and CE. Finally (5) Tax System (type E) is represented by TTR because of analogous reason as described for Direct Rigidities.

The economic explanatory variables are Change in Inflation (I) and Cycle. The total sample period, 1983-97, is divided into three cross-sections dated 1983-88, 1989-94 y 1995-97, that can be qualified as of economic expansion, recession and economic recovery, respectively. So in order to estimate the effect of the economic cycle on target outcome variables, two dummies are defined for 1983-88 and 1989-94, respectively.

The data available are structured in a panel, so the regression models are estimated using generalised least squares procedure, considering heterocesdaticity and AR(1) stochastic structure form the error term. It must be taking into account two limitations of this

methodology. The results obtained offer a helpful overview of the correlations in the data, but without considering possible feedback. And the environment of the analyses is partial, because there may be factors (social, political and/or cultural) that explain cross-country differences in unemployment and job creation that are not associated with the labour market.

4.2 Description of results

The estimated regression models (Tables 4.1-4.4, it is presented only the combinations of institutions with higher impact on unemployment and employment creation) offer the following information:

1. Estimated effects of combinations of labour market institutions. The purpose is to estimate the overall effect of different combinations of institutions, considering groups of two, three, four and five types of institutions considered, respectively. The following information can be taken out of this application: (1) which groups of institutions seem to be the ones with the largest potential effect on the endogenous variables, and (2) given a combination, which marginal impact is produced by including one more type of institution (comparing the adjusted R^2 obtained from the two estimated models, without and with the last type of institution).

2. Estimated parameters for each combination, with their standard deviation in parentheses. All the estimated parameters related to institutional variables are statistically significant at 10%, 5% and 1% levels. In addition, a sensitivity analyses (Levine and Renelt, 1992) is applied in order to detect the most robust relationships. The economic variables are always included in the regressions and do not affect the robustness of the estimated parameters for the institutional variables.

3. Interpretation of the estimated parameters: (1) it is applied the logarithm transformation (ln) to each endogenous variable, hence if the right-hand side of the regression model increases by 0.6, ln unemployment goes up by 0.6, so unemployment rises by just over 20 percent. For example, from a baseline unemployment rate of 5 percent, this would represent an increase of one percentage point to 6 percent. (2) All the models include a constant term, so

the parameters associated with the two dummies can be interpreted as the difference from the effect of the recovery phase (not included in the models) on endogenous variables, of the expansion and recession phases, respectively.

4.3 Interpretation of results

The quantification of the effects of the labour market institutions on unemployment and job creation reveals three important results. The most immediate is that Collective Bargaining, Unemployment Treatment and ALMP are the most influential institutions in relation to unemployment and, to a lesser extent, in relation to the employment/population ratio. The most general result, which confirms that the institutions have cumulative effects, indicates that partial reforms which only affect one type of institution achieve less significant reductions in unemployment than overall reforms which affect all of them. And the most specific result, from which employment policy recommendations may be extracted, shows that certain combinations of institutions have more effect than others on unemployment and employment rates.

Laws relating to EP (raise the cost of employment adjustment) will almost certainly reduce short-term unemployment, via the reduced inflows, and raise long-term unemployment, via the reduced outflow. So the overall impact on unemployment is likely to be rather small or null, as these effects tend to cancel out.

In the short term, no effect on unemployment would be expected from Benefit Duration (Nickell, 1997). However, the increase in the social and/or economic benefit period may (1) encourage employed people earning very precarious wages to leave their job, by raising their replacement rates, thus increasing short-term unemployment, and (2) discourage the unemployed more in the short term than the long term, by increasing the period of time which they have to look for a possibly better job. In any case, this may be ended by raising long-term unemployment, a larger influence on which is actually observed.

The most effective ALMP are those which offer economic support (APS), although they do not encourage the unemployed to actively seek work. This result is not due to the fact that

the proportion of public expenditure allocated to active policies in the labour market and invested in the training and recycling of human capital (an average of 47% during the 1983-97 period) is much less than that spent on subsidising the unemployed. The cause is to be found in the imbalance between the training acquired by potential workers (job supply) and the requirements of employers (job demand). It is therefore advisable that this type of policy be geared towards reducing this imbalance.

Collective Bargaining is crucial in order to explain the evolution of unemployment and employment creation, which is not greatly affected by the rest of the variables. Although in the long term only the level of co-ordination among employers and among unions seems to be important, the level of coverage and the level of centralisation of the wage agreements produce greater variations in the total short-term unemployment and in the employment rate. Among the group of countries studied, where the average union coverage rate is 65% together with an average union density of 42%, it is not surprising that the latter variable has a neutral effect on the unemployment rates and very little effect on the employment/population ratio.

The tax burden negatively affects the three unemployment rates, although its effect is small as compared with that of the aforementioned institutions. It does not play a very important role in determining long-term unemployment and the employment rate, with respect to which it does not form part of the combination of institutions which has the greatest cumulative effects. It should only be pointed out that, together with Collective Bargaining, it is the institution which has the largest influence on the short-term unemployment rate.

It is worth highlighting the fact that two of the institutions which generate high levels of rigidity in the labour market, EP and BD, constitute the most influential combination of institutions with regard to long-term unemployment. Therefore, the frequently denounced harmful effect of these rigidities on long-term unemployment has its empirical justification. However, when three types of institution are combined, the active policies become the counterweight to the previous ones. This suggests a reform which would make contractual legislation more flexible and channel the public funds invested in active policies towards an adjustment of the job supply and demand.

Table 4.1: Regressions to explain Total Unemployment Rate Percentage

	Combinations of labour market institutions (types B, C2, D and E)				
	B	D	BD	BC2D	BC2DE
BRR (%)	0.019 (0.003)		0.012 (0.004)	0.017 (0.004)	0.010 (0.004)
BD (0-4)	0.36 (0.05)		0.19 (0.05)	0.18 (0.04)	0.20 (0.04)
ALMP* (%)					
APS (%)				-0.17 (0.04)	-0.16 (0.03)
UC (%)		1.00 (0.10)	0.97 (0.17)	0.81 (0.15)	0.54 (0.15)
CO (2-6)		-0.17 (0.06)	-0.18 (0.06)	-0.21 (0.05)	-0.21 (0.04)
CE (1-3)			-0.52 (0.24)	-0.54 (0.22)	-0.41 (0.19)
TTR (%)					0.028 (0.006)
⋮ (%)	-0.093 (0.030)	-0.039 (0.028)	-0.027 (0.025)	-0.039 (0.015)	-0.034 (0.019)
Dummy for 83-88	-0.54 (0.22)	-0.26 (0.19)	-0.31 (0.17)	-0.34 (0.15)	-0.10 (0.07)
Dummy for 89-94	-0.23 (0.21)	-0.19 (0.18)	-0.21 (0.16)	-0.18 (0.14)	-0.15 (0.08)
Adjusted R2 (%)	0.08	0.20	0.39	0.53	0.64
T (countries, time)	60 (20, 3)	60 (20, 3)	60 (20, 3)	60 (20, 3)	60 (20, 3)

Table 4.2: Regressions to explain Short-term Unemployment Rate Percentage

	Combinations of labour market institutions (types: B, C2, D and E)					
	D	E	DE	BDE	BC2DE	ABC2DE
EP (1-20)						-0.024 (0.010)
BRR (%)				0.010 (0.004)	0.014 (0.003)	0.012 (0.003)
BD (0-4)				0.16 (0.04)	0.16 (0.04)	0.14 (0.04)
ALMP* (%)						
APS (%)					-0.15 (0.03)	-0.14 (0.03)
UC (%)	0.92 (0.18)		0.60 (0.10)	0.46 (0.15)	0.35 (0.13)	0.45 (0.14)
CO (2-6)	-0.11 (0.05)		-0.17 (0.05)	-0.17 (0.05)	-0.20 (0.04)	-0.16 (0.04)
CE (1-3)	-0.30 (0.25)		-0.58 (0.22)	-0.78 (0.20)	-0.52 (0.18)	-0.46 (0.17)
TTR (%)		0.031 (0.002)	0.034 (0.007)	0.031 (0.007)	0.029 (0.006)	0.027 (0.006)
⋮ (%)	-0.010 (0.007)	-0.044 (0.024)	-0.036 (0.023)	-0.033 (0.021)	-0.021 (0.011)	-0.031 (0.018)
Dummy for 83-88	-0.038 (0010)	-0.028 (0.017)	-0.24 (0.17)	-0.29 (0.15)	-0.28 (0.14)	-0.25 (0.13)
Dummy for 89-94	-0.023 (0.017)	-0.16 (0.15)	-0.26 (0.15)	-0.19 (0.14)	-0.13 (0.09)	-0.34 (0.12)
Adjusted R2 (%)	0.05	0.05	0.24	0.40	0.59	0.60
T (countries, time)	60 (20, 3)	60 (20, 3)	60 (20, 3)	60 (20, 3)	60 (20, 3)	60 (20, 3)

Table 4.3: Regressions to explain Long-term Unemployment Rate Percentage

	Combinations of labour market institutions (types: A, B, C2, D and E)					
	D	E	DE	BDE	BC2DE	ABC2DE
EP (1-20)						-0.024 (0.010)
BRR (%)				0.010 (0.004)	0.014 (0.003)	0.012 (0.003)
BD (0-4)				0.16 (0.04)	0.16 (0.04)	0.14 (0.04)
ALMP* (%)						
APS (%)					-0.15 (0.03)	-0.14 (0.03)
CO (2-6)	-0.11 (0.05)		-0.17 (0.05)	-0.17 (0.05)	-0.20 (0.04)	-0.16 (0.04)
CE (1-3)	-0.30 (0.25)		-0.58 (0.22)	-0.78 (0.20)	-0.52 (0.18)	-0.46 (0.17)
TTR (%)		0.031 (0.002)	0.034 (0.007)	0.031 (0.007)	0.029 (0.006)	0.027 (0.006)
I (%)	-0.010 (0.007)	-0.044 (0.024)	-0.036 (0.023)	-0.033 (0.021)	-0.021 (0.011)	-0.031 (0.018)
Dummy for 83-88	-0.038 (0010)	-0.028 (0.017)	-0.24 (0.17)	-0.29 (0.15)	-0.28 (0.14)	-0.25 (0.13)
Dummy for 89-94	-0.023 (0.017)	-0.16 (0.15)	-0.26 (0.15)	-0.19 (0.14)	-0.13 (0.09)	-0.34 (0.12)
Adjusted R2 (%)	0.05	0.05	0.24	0.40	0.56	0.60
T (countries, time)	60 (20, 3)	60 (20, 3)	60 (20, 3)	60 (20, 3)	60 (20, 3)	60 (20, 3)

Table 4.4: Regressions to explain Employment/Population Ratio

	Combinations of labour market institutions (types: A, B, C, D and E)					
	A	D	AD	ABD	ABDE	ABCDE
EP (1-20)	-0.14 (0.03)		-0.15 (0.03)	-0.18 (0.03)	-0.17 (0.07)	-0.17 (0.03)
BD (0-4)				-0.17 (0.08)	-0.17 (0.09)	-0.17 (0.09)
ALMP* (%)						0.086 (0.042)
UD (%)		0.029 (0.007)	0.020 (0.006)	0.014 (0.006)	0.016 (0.007)	0.015 (0.007)
UC (%)		-0.99 (0.30)	-0.83 (0.34)	-0.71 (0.37)	-0.67 (0.38)	-0.65 (0.38)
CO (2-6)		0.27 (0.11)	0.49 (0.11)	0.41 (0.10)	0.41 (0.10)	0.41 (0.10)
CE (1-3)				0.89 (0.41)	0.90 (0.40)	0.80 (0.44)
TTR (%)					-0.079 (0.014)	-0.060 (0.014)
I (%)	-0.035 (0.015)	-0.056 (0.028)	-0.058 (0.043)	-0.017 (0.003)	-0.023 (0.014)	-0.021 (0.013)
Adjusted R2 (%)	0.21	0.29	0.36	0.43	0.44	0.46
T (countries, time)	60 (20, 3)	60 (20, 3)	60 (20, 3)	60 (20, 3)	60 (20, 3)	60 (20, 3)

5. CONCLUSIONS

The European labour markets hide a wide diversity with respect to both labour market institutions and the rigidities induced by them, and unemployment and employment creation. Furthermore, the differences within Europe are much greater than are the difference between the European average and North America.

Rigidity does not imply, per se, high or persistent unemployment. It is shown "that the European labour market is rigid, so it has high unemployment" is not adjusted to the empirical reality, and that many characteristics of the labour market that are popularly viewed as serious rigidities have slight impact on unemployment. In fact, high overall taxes, strict employment protection legislation, high unionisation and high benefit replacement rates apply no more to this high-unemployment group than they do to the low-unemployment group. This means that labour market rigidities do not generate negative effects on unemployment due to fact of existing, but they may become responsible for high unemployment due to its inadequate use.

A wide range of labour market institutions have cumulative effects on unemployment and employment creation. In particular, the unemployment effect of each institution is greater when it is implemented in conjunction with other institutions than in isolation. This accumulated effect can be amplified under specific combinations of institutions, emphasising the combination of high degree of Collective Bargaining with Active Labour Market Policies. This indicates that partial reforms which only affect one type of institution achieve less significant reductions in unemployment than overall reforms which affect all of them.

Finally, given the diversity of labour market institutions and policies across OECD countries, in particular European countries, and the variety of reforms already implemented, it seems to be clear that the set of policy measures comprising fundamental labour market reform will differ from country to country. That is, the relevant range of to reform in conjunction depends crucially on the countries' institutional structure.

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ANNEX: VARIABLES

Total Unemployment Rate (TUR): standardised rates; per cent of total labour force.
Sources: Nickell (1997), Table 1. And OECD (1996a), Tables L and 1.3.

Long-term Unemployment Rate (LUR): standardised rates; per cent of total labour force.
The long-term is defined as a duration of more than a year.
Sources: Nickell (1997), Table 1. And OECD (1996a), Tables L, Q and 1.3.

Short-term Unemployment Rate (SUR): difference between TUR and LUR.

Employment/Population Ratio (EPR): ratio of employed persons to the total working-age population.
Source: OECD (1997a), Table B.

Employment Protection (EP): index based on the degree of rigidity of the legal framework governing hiring and firing. It is ranked from 1 to 20, with 20 being the most strict legislation.
Source: OECD (1994b), Table 6.7.

Labour Standards (LS): synthetic index referred to the legislation governing a number of aspects of the labour market. It is ranked from 0 (lax or no legislation) to 10 (strict legislation), on each of the five dimensions: working time, fixed-term contracts, employment protection, minimum wages and employees' representation rights (on works councils, company boards and the like).
Source: OECD (1994c), Table 4.8.

Benefit Replacement Rate (BRR): average of gross unemployment benefit replacement rates for two family situations with average earnings in work. These rates does not take into account of taxation, benefits to children, social assistance, employment-conditional transfers or housing benefits; percentage of gross earnings.
Sources: Nickell (1997), Table 4. And OECD (1997c), Table 2.

Benefit Duration (BD): the major benefit transitions which an unemployed person will face over an eight-year spell of unemployment (unemployment insurance, assistance benefit). It is ranked from 0 to 4, with 4 being unlimited duration.
Sources: Layard *et al.* (1994), Table 5. Nickell (1997), Table 4. And OECD (1996b), Fig. 2.3.

Active Labour Market Policies (ALMP): expenditures for active labour market programmes per unemployed person relative to Gross Domestic Product (GDP) per capita (in per cent):

ALMP = (ALMPex/U) / (GDP/Pop)

ALMPex: expenditures on active labour market programmes.
Sources: OECD (1988, 1995b and 1996b), Tables 3.1 and T.

U: total registered unemployed.
Sources: OECD (1989, 1994c and 1995b), Tables I and T.

Pop: working age population.
Sources: OECD (1989, 1994a and 1996b), Tables C, L and F.

GDP (real).
Source: OECD (1997b), Annex Table 1.

Note: ALMP = APC + APS + Public employment services and administration.

Active Labour Market Policies (human capital) (APC):

APC = (ALMPhc/U) / (GDP/Pop)

ALMPhc: expenditures on active labour market programmes related to labour market training and youth measures.
Sources: OECD (1988 and 1996b), Tables 3.1 and T.

Active Labour Market Policies (subsidies) (APS):

APS = (ALMPs/U) / (GDP/Pop)

ALMPs: expenditures on active labour market programmes related to subsidised unemployment and measures for the disabled.

Sources: OECD (1988 and 1996b), Tables 3.1 and T.

Union Density (UD): percentage of workers who are members of trade unions.
Source: OECD (1997a), Table 3.3.

Co-ordination (CO): index based on co-ordination in wage bargaining, on the part of both unions and employers. It is ranked from 2 to 6, taking into account that the degree of union and employer co-ordination is ranked from a low of 1 to a high of 3.
Source: OECD (1997a), Table 3.3.

Centralisation (CE): degree of centralisation of wage bargaining. It is ranked from 1 (decentralised) to 3 (centralised).
Source: OECD (1997a), Table 3.3.

Payroll Tax Rate (PTR): ratio of labour costs to Average Production Workers earnings.
Total labour costs include social security contributions and other indirect costs paid by employers and social contributions and taxes on pay levied on employees.
Source: Nickell (1997), Table 5.

Total Tax Rate (TTR): sum of the average payroll, income and consumption tax rates.
Sources: OECD (1995a), Table 2.1. And Nickell (1997), Table 5.

Change in Inflation (I): percentage changes from previous period (consumer prices).
Source: OECD (1997b), Annex Table 16.

Cycle (D1, D2): two dummies for 1983-88 and 1989-94.